



FTC Eldon Gearheads

Robotics Handbook

Section 1 Introduction to the Robotics Program

1.1 Introduction to FIRST®

FIRST® (For Inspiration and Recognition of Science and Technology) was founded by Dean Kamen. The FIRST® Robotics Competition is a national contest founded in 1989. In 2011, FIRST® reached well over 250,000 students. In addition, the FIRST® program and its supporting universities, institutions, and corporations awarded almost fourteen million dollars in scholarships to its participants. The competitions are high-tech, spectator sporting events and the result of lots of focused brainstorming, real-world teamwork, dedicated mentoring, project timelines, and deadlines. It is an opportunity for the students of Eldon to work closely with community leaders and businesses to get a hands-on, inside look at the real-world competitive environment. The teams then compete in a spirited, no-holds-barred tournament complete with referees, cheerleaders, and time clocks. To learn more about this international program, please go to www.usfirst.org.

1.2 About Eldon Gearheads

The Eldon Gearheads robotics team was founded in 2014 when the school received a 21st Century Communities Learning Centers grant and established the afterschool LEAP program. At that time, the Gearheads consisted of two FIRST® Lego League Robotics (FLL) teams and a FIRST® Tech Challenge (FTC) at the Eldon High School (FLL). Our FLL teams have grown to incorporate 4 teams and 38 students. In the 2017-2018 school year, the robotics family will expand to include a FIRST® Tech Challenge (FTC) team at the middle school.

Students in grades (4-6) will compete in the FLL section of the FIRST® programs. Starting at 7th grade students will have the opportunity to compete in the FTC program.

1.3 Team Membership

The number of team members varies each year due to funding, facilities and staff size. All teams are formed after students meet criteria including teacher recommendation, academic, attendance, and social interactions/behavior in place deemed age appropriate.

Section 2 FTC Team Roles & Responsibilities

2.1 Roles & Responsibilities

The team offers a wide range of committees in which students can participate. Team members are expected to help in multiple areas. Each committee offers its own unique challenges and rewards, with student assistance provided by skilled mentors. Such areas include (but are not limited to):

Fundraising: Plans and organizes fundraisers for the team.

Publicity/Mass Media: Responsible for team flyers, writes newspaper articles, and communications with the community. Maintains and updates the team's Facebook page. Responsible to take pictures, record video with both cameras and video feed at competitions, organize and place raw photos and video to computer/network drive, and documents the team's activities. Will also help edit video and pictures as needed by other areas.

Spirit: Responsible for team's overall appearance, including t-shirts designs, signs and other accessories, establishes and maintains positive morale and attitudes at competitions.

Safety: Helps ensure safe behavior by team members, and safe conditions in our build room at all times. A member will be honored as Safety Captain at regional and championship events.

Mechanical: Brainstorms, designs, fabricates, assembles and maintains the robot, and work toward achieving the Industrial Design Award.

Electrical: Works with the mechanical team to design and implement the electronics of the robot.

Programming: Programs the robot control interface and autonomous mode. Work towards attaining the Innovation in Control Award and knowing the game rules.

Rules/Updates: Team experts on current year rules. Keep fully updated copies of the competition manual.

Scout/Strategy: Formulates game strategy and reviews matches, scouts opponent robots to benefit strategy, and work closely with drivers and human players. This team is also responsible for working closely with drive team at competitions. This group will also work very closely with the rules team and thoroughly understand the points system developing scouting program techniques for competitions.

2.2 Selecting an Area in Which to Participate

During the month of October, students will explore many areas to find their best fit. After the first month, students will pick an area to focus on and spend the remaining portion of the season mastering their given task.

Section 3 Student Obligations & the Competition Team

The competition teams will be picked once the robot(s) are built. Anyone who wants to be on the team that travels for FTC will be put on a list for a chance to practice/drive the robot(s). A team of judges (including selected mentors) will watch students throughout the build season to determine who is best suited for each role on the team. Judges will look for various characteristics including how well they work as a team with other students, mentors and coaches, if they have studied the game rules and have obtained enough knowledge to compete, how they exhibit FIRST® and Gearheads core values at all times, discipline issues and attendance. Requirements for competition team positions:

Student Coach: Must have been on the team for one year, attended two competitions, have an excellent understanding of the rules, and be able to clearly communicate with others.

Drivers and human player: Must have participated in at least one competition and showed proficiency at practices and tryouts. Two teams will be chosen. The primary team will drive at competitions. The secondary team will mostly work on fundraising such as driving the robot at demonstrations. The secondary team may fill in if the primary team wants a break or has demonstrated that they can no longer operate in a competitive environment. While these are the typical requirements of a drive team, the situation may vary from person to person; the final decision of the makeup of the competition team is the responsibility of the head coach.

Section 4 Fundraising & Financial Obligations

Students are required to participate in team fundraising activities throughout the year. Fundraising is an important obligation, as it not only helps the team to bring in necessary financial resources, but it also spreads awareness of our organization and helps to bring in potential sponsors/donors who could be useful partners in the future. All fundraising must be coordinated with and approved by the head coach and/or Financial Director, as well be in accordance with the Eldon Board of Education policy on fundraising.

These obligations are as follows:

1. The LEAP Director and coaches will evaluate team funding and decide which competitions that Eldon Gearheads will participate each season. This will be decided by the first part of September and reported at the Gearhead team family night.
2. Once a student is selected as a member of the Gearheads team, he or she will be required to pay a NON-REFUNDABLE membership fee of \$35. Checks are made to Eldon Schools LEAP with Gearhead Robotics in the memo line and sent to the LEAP office. Payments can be turned into the student's building office, but should be in an envelope addressed to the LEAP office.

Robotics members may also be responsible for travel, meals, and lodging at competition events, and every effort will be made to cover these expenses through the membership fee and other fundraising.

Fundraising events sponsored by LEAP are group fundraisers. Funds raised by the group provide for team expenses (tools, robot parts, necessary equipment, travel, food expenses and lodging). Students are required to participate in as many fundraising activities as possible, as it helps the team along with the individuals themselves. Students that do not participate may be removed from the team or required to pay for competition expense associated with travel, meals, and lodging. A team member needs to contact the head coach if they can't afford travel to team events

Most food and incidentals at competitions are additional personal out of pocket expenses, unless otherwise specified. Funds raised through either individual or group fundraising activities are not to be used for the purchase of food or beverages at the weekend build sessions, this will come from out-of pocket sources or family or local vendor donations.

5. Team members play an active role in a team and take responsibility for their schedule. This includes learning to work effectively as a group, developing personal relationships, fundraising, and attending scheduled commitments or notifying coach prior to event if a major conflict arises that prevents participation. ALL Team members are expected to participate in fundraisers.

Note that the team is always looking for major sponsors or contributions of any kind. If you know of a person or business wishing to sponsor or donate to the team please contact the head coach or financial director. Please do not represent the team as there are specific branding and marketing criteria from FIRST® that must be adhered to.

Section 5 Student Expectations

5.1 Enjoy Yourself . . . Learn & Experience Science & Technology Teamwork!

5.2 Academic Standing

To participate in the program, students must maintain a focus on academics and not be failing any courses. Academics come first and define the student's success.

5.3 Group Participation

Team members must earn the chance to participate at events with Eldon Gearheads. This distinction will be determined by the coaches based on the student's participation, contribution, and school standing prior to each event. Students are required to participate in all workdays, competitions, presentations and other events as directed by FIRST® coach(es). Students who have not logged the required amount of hours, produced quality work or have not met all policies as directed by coach(es) will not be eligible to attend competitions, regionals, and nationals.

5.4 Attendance

Students must maintain a good standing on the team in order to attend competitions and scrimmages. Good standing is determined by your grades, participation & attendance. Each student is required to sign in, and parents should sign students out of every meeting. Attendance is tracked for grant data. School always comes first. If you have a challenging conflict, please see one of the coaches as soon as the challenge arises. Communication with coaches is important.

In the event of severe weather conditions, we may cancel sessions, or we may meet if the school is open. In these cases, it is then up to student's guardian/parent(s) whether to allow the student to attend. In these instances, attendance is optional and will not be counted against the student.

Saturday meetings/builds are optional.

5.5 Acceptable Behavior

Students must conduct themselves in a manner consistent with Eldon School's policy and procedures. The Gearhead expectations and the FIRST® code of conduct must be adhered to at all times in the **regular school day** and during robotics classes, meetings and at competition. FIRST® robotics has coined the phrase *gracious professionalism*, which means students will behave in a respectful and courteous manner to all individuals. Behaving professionally will prepare students for the rigorous demands of a work place.

The head coach reserves the right to remove a student from the team at any time. **Safety of all students and a positive, respectful learning environment are key priorities at all times. Students should demonstrate the FIRST Core Values.**

FIRST Core Values

- We are a team.
- We do the work to find solutions with guidance from our coaches and mentors.
- We know our coaches and mentors don't have all the answers; we learn together.
- We honor the spirit of friendly competition.
- What we discover is more important than what we win.
- We share our experiences with others.
- We display Gracious Professionalism and Cooperation in everything we do.
- We have FUN!

If a student behaves inappropriately or breaks school rules, it will be at the coaches' discretion to do what is necessary, including removal from the team. If an incident occurs during competition, a student may be sent home from the competition, at the student's/parent's expense.

5.6 Self-Motivation

The students who learn the most are the ones who ask questions and observe the mentors and coaches. Students who develop those skills gain the most knowledge and growth. It is suggested that you are eagerly engaged and participating. Students will not be forced to participate. This is a "self-motivating" program, and while the coaches and volunteers will make every effort to encourage involvement by all students, the student makes the ultimate decision about his or her involvement, progress, and knowledge gained.

5.7 Parental Involvement

We strongly encourage the guardian/parent(s) of students to participate whenever they can. There are many ways for guardian/parent(s) to participate such as: chaperoning, assisting with fundraising, providing food and refreshments for our weekend build sessions, etc. While the team can always use more support from the technical/engineering perspective, we are in need of other talents such as organizing, fundraising, spirit activities, and publicity, and we welcome any and all additional support. All guardian/parent(s) should be prepared to help and support the efforts of the parent support group as required. All mentors/volunteers working with our students must pass background checks. As the Eldon Gearheads grows, it may be necessary to organize and create a "Parent Support Group" similar to the band or athletics boosters. At this time, it is important that all guardian/parent(s) of team members become familiar with the team mission and mission of FIRST® Robotics. Guardian/Parent(s) support of Eldon Gearheads is essential for this young organization to grow and be recognized in our community and school. There is an important role in communication between this student organization, school administration, and community that will prosper with guardian/parent(s) support. While the students (along with the coach & mentors) will make every effort to communicate the importance of this program to the larger community and lawmakers who determine much of the current funding like to hear

from parents and students about the impact of the program. Assisting students by sharing social media posts is just one way parents can be involved.

A couple of additional guardian/parent volunteer reminders:

- Volunteers will be asked to assist with all teams, not only your student's immediate team.
- All volunteers must register at the www.usfirst.org website and pass background check required.
- FIRST® Robotics is a student led project with coaches and volunteers providing guidance, but not building or programming for the students.

5.8 What Students Gain

The experience of teamwork with peers and adults

The experience of establishing and following a schedule and meeting a project deadline.

Exposure to the field of engineering and professional engineers, as well as marketing, artwork, computers, and financing.

Exposure to all facets of a program that designs, delivers, and uses a "real-world" product (the robot) to perform to set goals and specifications.

Useful knowledge in choosing a career path.

A challenge to explore their aptitudes, skills, and limits.

A great team bonding experience.

Life skills, such as problem solving, teamwork, and commitment.

Friendships that will last a lifetime.

Exposure to a source of college scholarships.

Lifetime connection to a US FIRST® Alumni Group.

5.9 Failure to follow the Handbook

While clearly the purpose of the program is to be inclusive and afford every child the opportunity to learn and grow, in some rare instances the program must reserve the right to limit the participation of a child (or mentor) whose actions are:

- 1) Jeopardizing the health and/or safety of anyone – violating the safety program.
- 2) Disruptive to the program, as determined by a consensus of coaches.
- 3) Inconsistent with the behavioral policies of this handbook as well as those of Eldon School District & FIRST® robotics.

The team's head coach/LEAP Director/school principal responsible for disciplinary action will determine this. In the instance of violation of the codes of conduct outlined in this handbook, one written warning

will be issued to the student and the guardian/parent(s). During which time the student's ability to participate may be limited by the coach. Further infractions may result in the person being ineligible to participate in the program. Any such decision, which would be made by both the coach and the Eldon School District representative responsible for disciplinary action, would remain in effect for the remainder of that season.

5.10 Trips

In the event of any type of team trip, participating team members are expected to have all permission slips, medical forms, money, and any other necessary items handed in on time. Failure to do so may result in the student not being allowed to participate in the event.

5.11 Recruitment

The team is always looking for interested and fun students to join our ranks. In addition, we also look forward seeing former members return year after year for yet another action-packed season. Team members are always encouraged to recruit new students to the program if they demonstrate interest in the team and meet all criteria.

Section 6 Agreements

6.1 Transportation with Adult Mentors

Adult mentors or coaches may offer to provide transportation to students using their personal or school owned vehicle. In such instances when students agree to ride with an adult mentor or coach in his/her car, the student is responsible for his/her own safety and well-being, and by signing the handbook, guardian/parent(s) and the students recognize this and release adult mentors and coaches of any liability if injury occurs when a student is riding in a mentor's car.

6.2 Snow Days during Robotics Functions

There may be occasions when the Eldon Gearheads team is away from school at a robotics function, such as the regional competition, when school gets cancelled for reasons relating to weather or otherwise. In such an event, the team will stay at its current location and continue with the trip as a school-sponsored function, returning home at the originally scheduled time, if travel is safe to do so. By signing the handbook, guardian/parent(s) agree that the student may stay with the Eldon Gearheads at their event as initially planned. If guardian/parent(s) wish for their son or daughter to return home, they must provide transportation and notify the head coach that they are taking their son or daughter home and officially sign out their student.

6.3 Publicity

The Eldon Gearheads FIRST® Robotic Teams frequently take team and individual photographs to commemorate our accomplishments and preserve our team heritage. These team and individual photos often appear in media related to the Eldon Robotic Teams. By signing and agreeing to this handbook, guardian/parent(s) and students agree and consent to allow their photographs, name, or comments to appear in media related to the Eldon Gearheads FIRST® LASER Teams and FIRST®

2017-2018 Robotics Contract



I have read and understand what is expected of me in the robotics classroom. I understand I must be responsible, respectful, listen to my coaches and teammates, and strive to be a positive team member.

Student Signature & Date

I have read the expectations and agree that my student will strive to meet the expectations set forth in this handbook in order to participate in robotics. I also understand that if I have any issues with the robotics program I should contact Colleen Abbott at 573-392-6364 ext. 1535.

Parent Signature & Date

Please return this form and the \$35 by September 15. Make checks payable to Eldon R-1.

2017-2018 Robotics Scholarship Request



Student Name:

Please provide a brief explanation for the need for the scholarship for your student:

Your request will be reviewed and you will be notified of your request status by the LEAP Director. Please return to Upper Elementary or Middle School Office with Attention Colleen Abbott, LEAP.

Parent Signature & Date.